# NORTH SEA

## Southern Portion

## POCKET TIDAL STREAM ATLAS

*Published by*
*The Hydrographic Department of the Admiralty*
*under the superintendence of Vice Admiral J. A. Edgell, C.B., O.B.E.*
*Hydrographer.*

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NORTH SEA - Southern portion

# POCKET TIDAL STREAM ATLAS.

## EXPLANATION.

### (1) TIDAL STREAMS

The tidal stream arrows shown thus, $\overline{08,15}$ depend on observations obtained in recent years or upon the recomputation of earlier observations. The rates are given for mean neaps and mean springs, thus 08,15 = mean neap rate 0.8 kn., mean spring rate 1.5 kn. For method of determining rates other than mean neaps and mean springs, see under (3) below.

### (2) CURRENT IN THE NORTH SEA

Currents are not included with the Tidal Streams shown on these charts. They are for the most part to be detected by the acceleration or retardation of the tidal streams. The system is not constant but is subject to great change under the influence of varying meteorological conditions. Generally speaking water enters the North Sea from the Atlantic (a) to the eastward of the Shetland Islands (b) through Dover Strait and from the Baltic through the Skagerrak. In general, the only outflow takes place along a narrow belt close to the Norwegian coast. These principal water movements determine the circulation. The water entering the North Sea through Dover Strait flows along the continental coast towards Helgoland Bight at an average rate of about three miles a day.

The currents are so much under the influence of the wind that in open stretches of water, winds of any appreciable force or persistence will set up a current in the upper layers of the water in their own direction. In inshore waters while this will be the initial effect, the ultimate current will depend upon the trend of the coast and the extent to which the wind has raised the water level on the lee shore.

### (3) COMPUTATION OF RATES AT TIMES OTHER THAN MEAN NEAPS AND SPRINGS.

At times other than mean neaps and springs the rates are assumed to depend upon the range of the tide at Dover on the day. The following table gives the factors to be used according to the mean range of the day:-

TABLE OF FACTORS.

| Mean range at Dover | Spring factor | Mean range at Dover | Neap factor |
|---|---|---|---|
| 22ft. | +.4 | 15ft. | +.6 |
| 21 " | +.3 | 14 " | +.4 |
| 20 " | +.2 | 13 " | +.3 |
| 19 " | +.1 | 12 " | +.2 |
| 18 " | -.1 | 11 " | +.1 |
| 17 " | -.2 | 10 " | -.1 |
| 16 " | -.3 | 9 " | -.2 |
| 15 " | -.4 | 8 " | -.3 |
| 14 " | -.6 | 7 " | -.4 |

Instructions:- Subtract the neap rate from the spring rate; multiply the difference by the factor (according to the mean range at Dover), and apply the result according to sign to the spring and neap rate. The table of spring factors should be used when the mean range at Dover is 14.5 or more and (difference x factor) applied to the spring rate; when the mean range at Dover is less than 14.5 the neap factor should be used and (difference x factor) applied to the neap rate.

Example:- Required predictions of the rate of the tidal stream in 54°N,1°E. at 0400 on 7th June 1941.

From Admiralty Tide Tables, Part I:- H.W.Dover 0900, mean range on day 16.8feet. The appropriate chart in the atlas is therefore that for 5 hours before H.W.Dover.

From Chart:- direction of tidal stream 130°, neap and spring rates 05,10.

Spring factor from table = -.2
Spring and neap difference = 10-05 = 5
Difference x factor = 5 x (-.2) = -1
Rate on the day = 10-1 = 9 or 0.9 kn.

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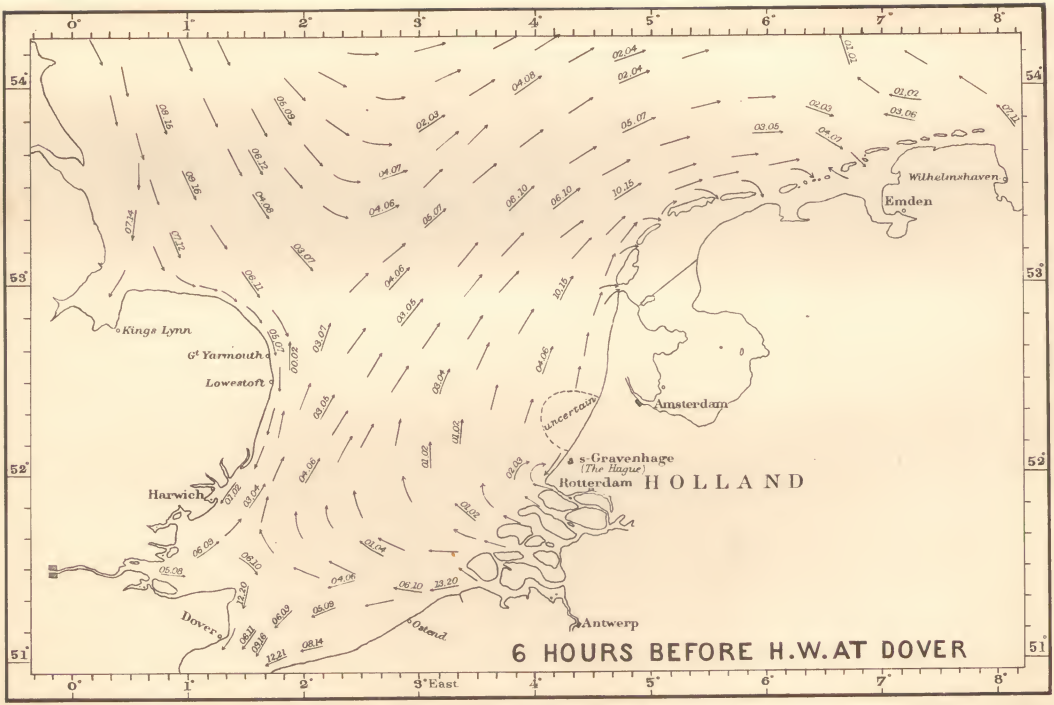
NOTE. This atlas shows some amendments to the tidal stream arrows off the Dutch Coast which have not yet been embodied in the Atlas of Tides and Tidal Streams, British Islands and Adjacent Waters.

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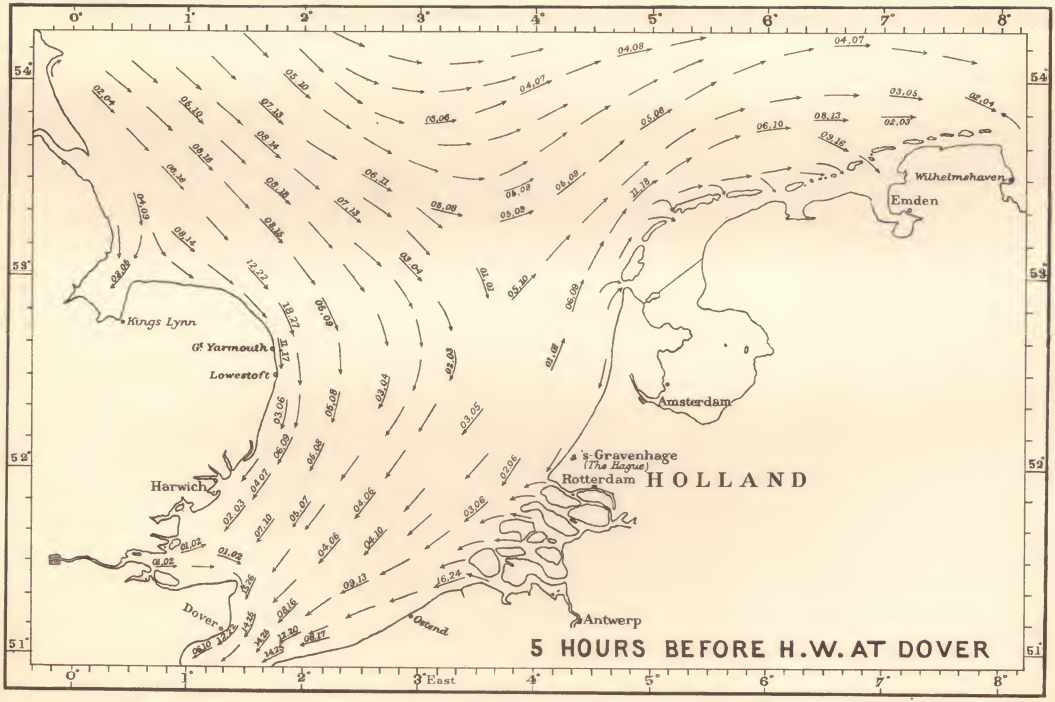


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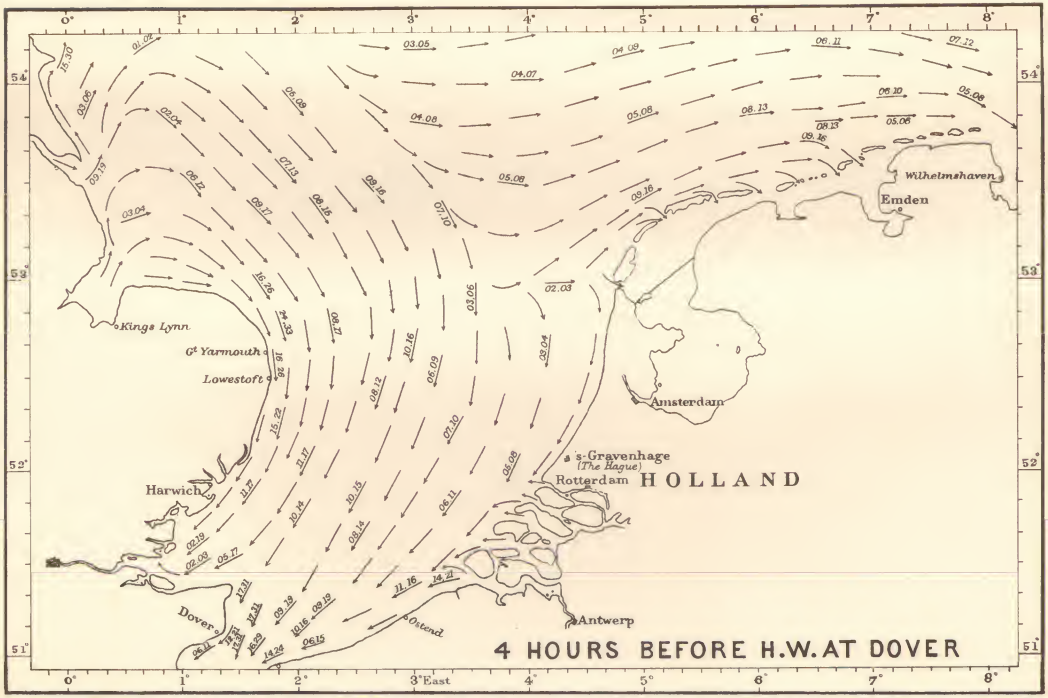


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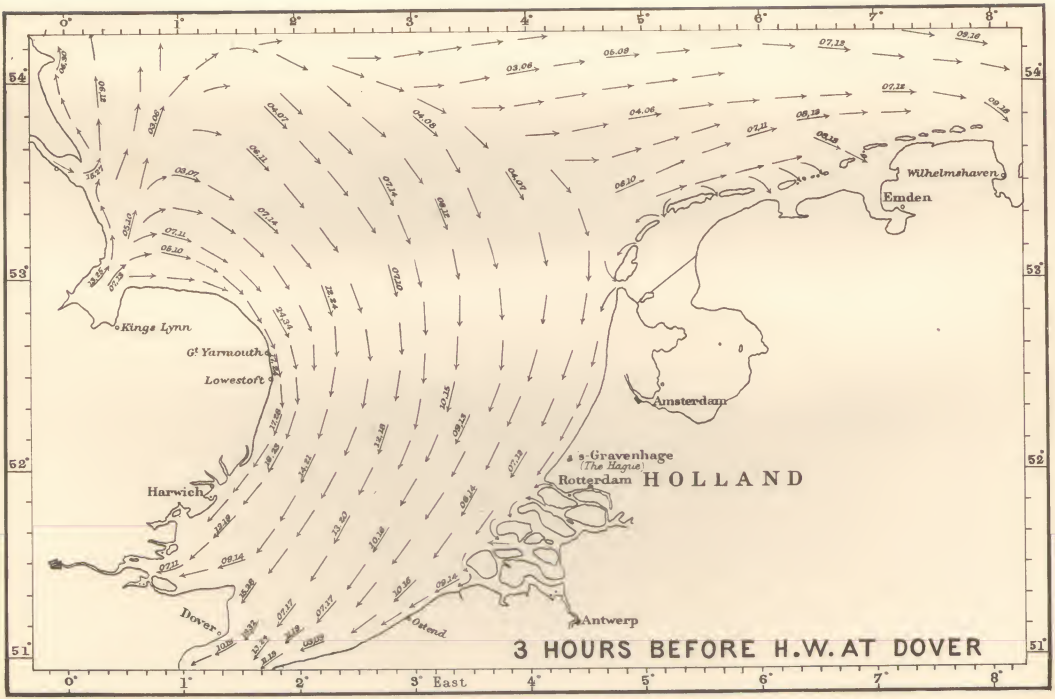


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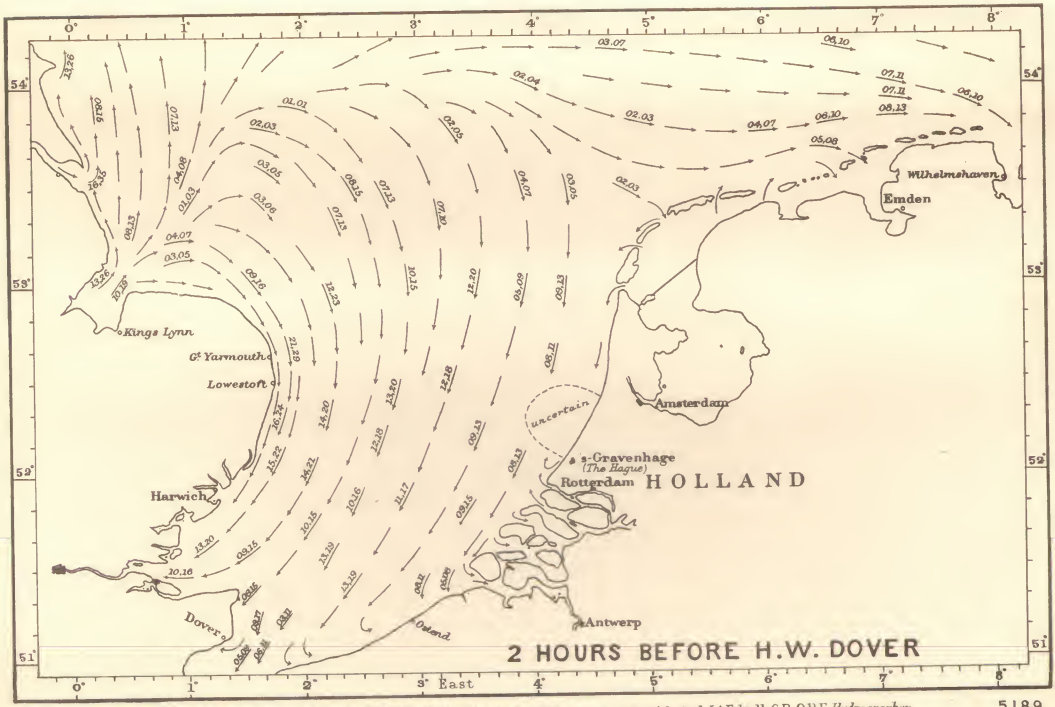


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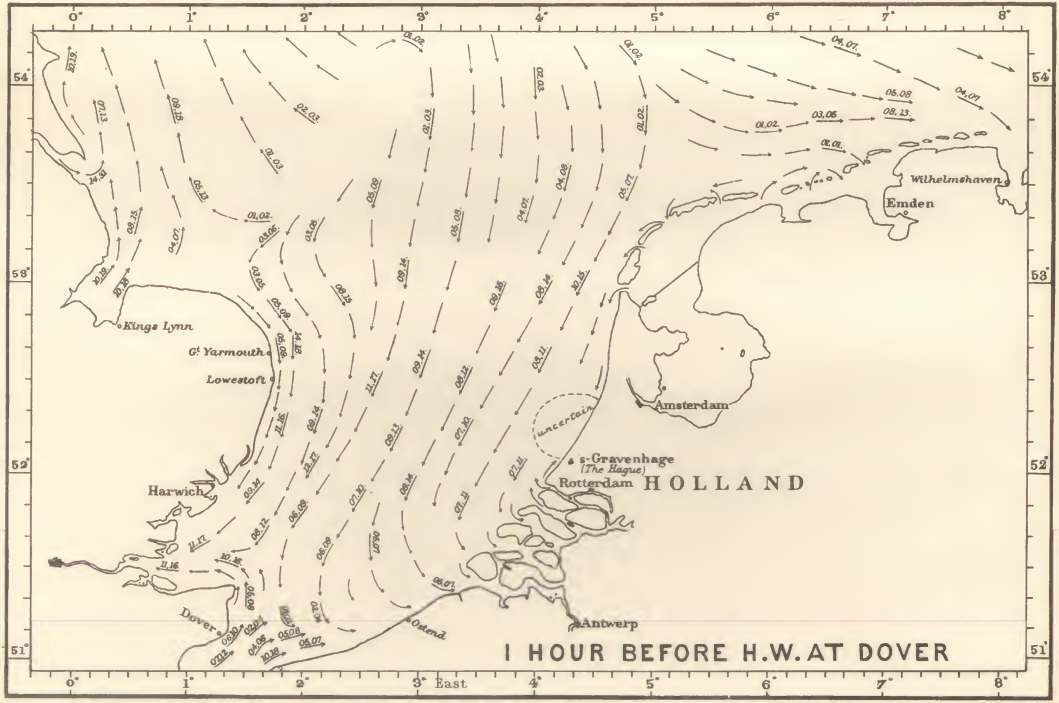


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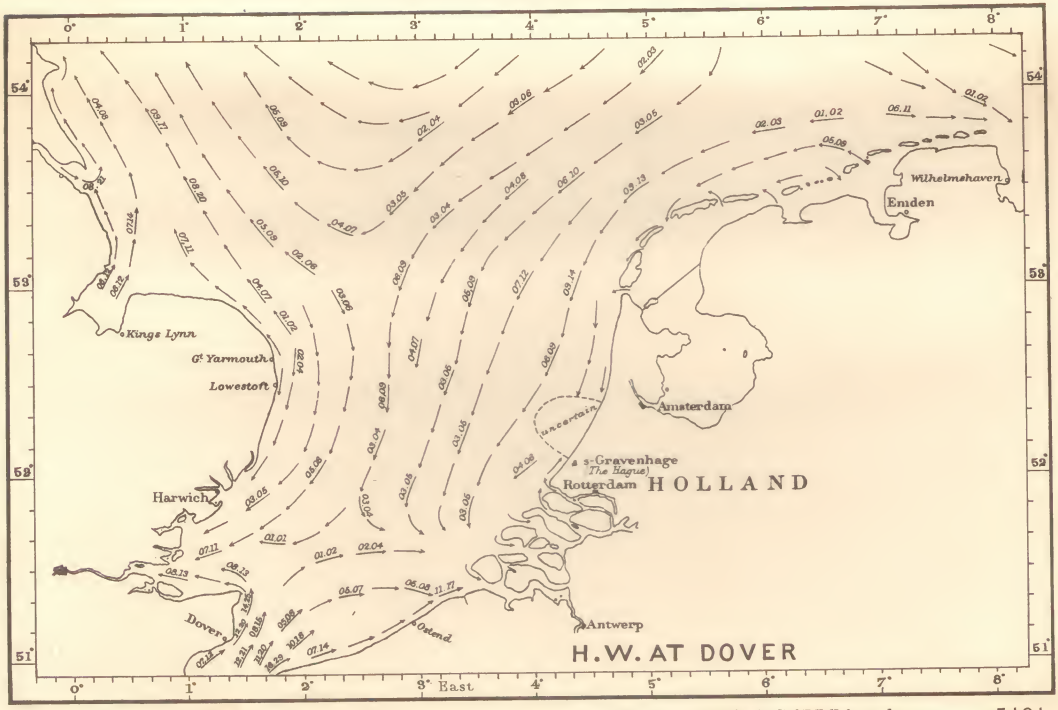


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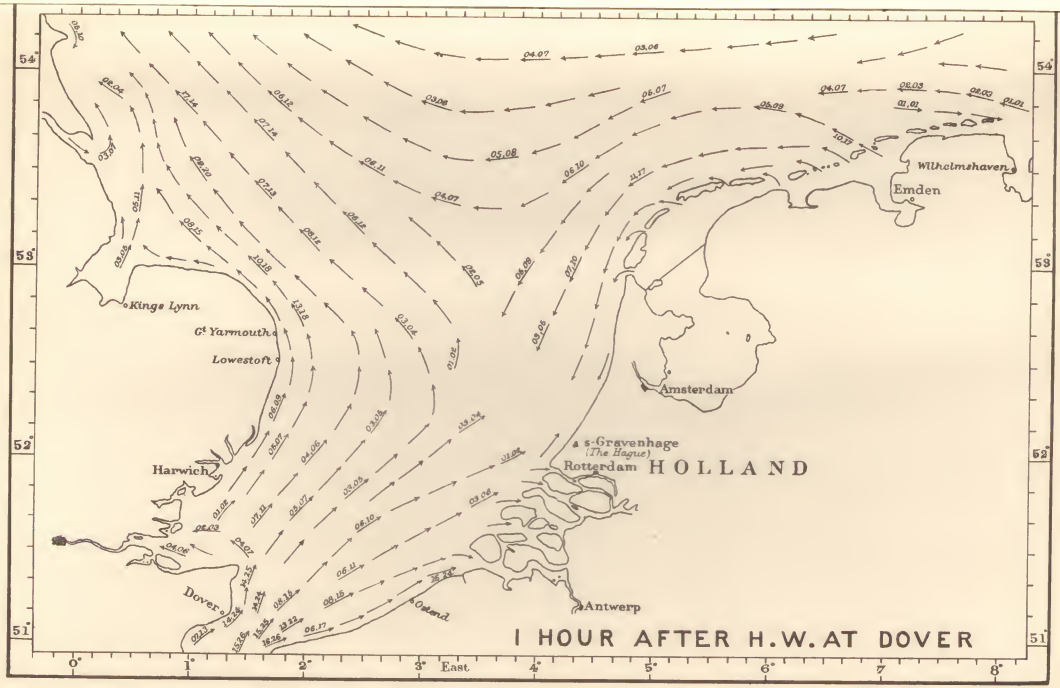


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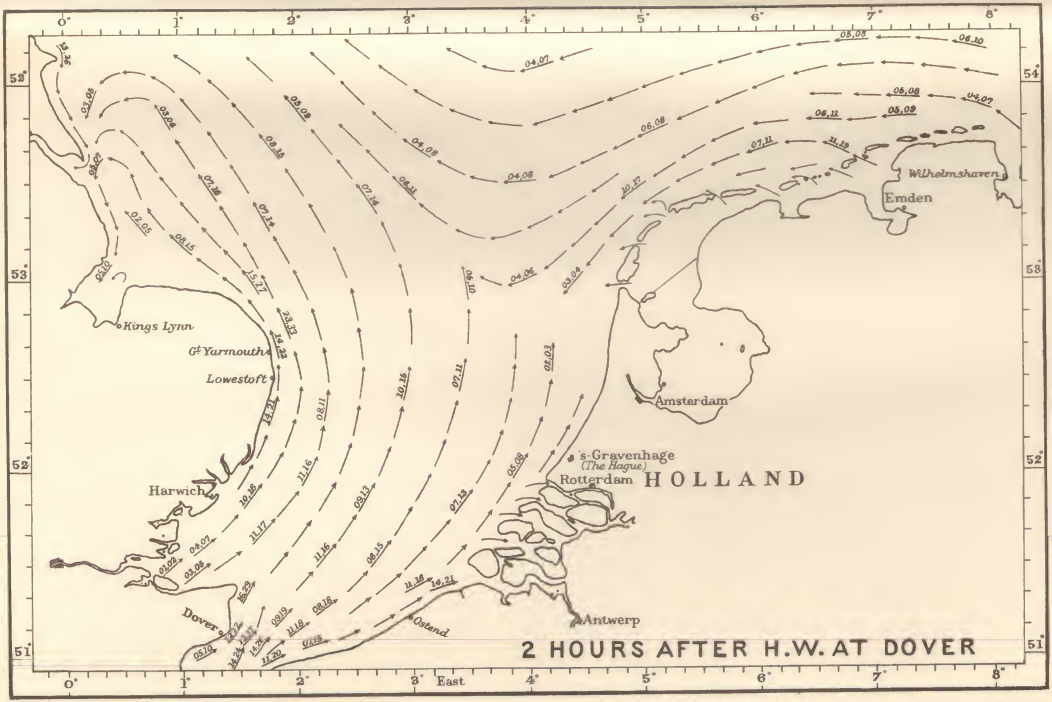


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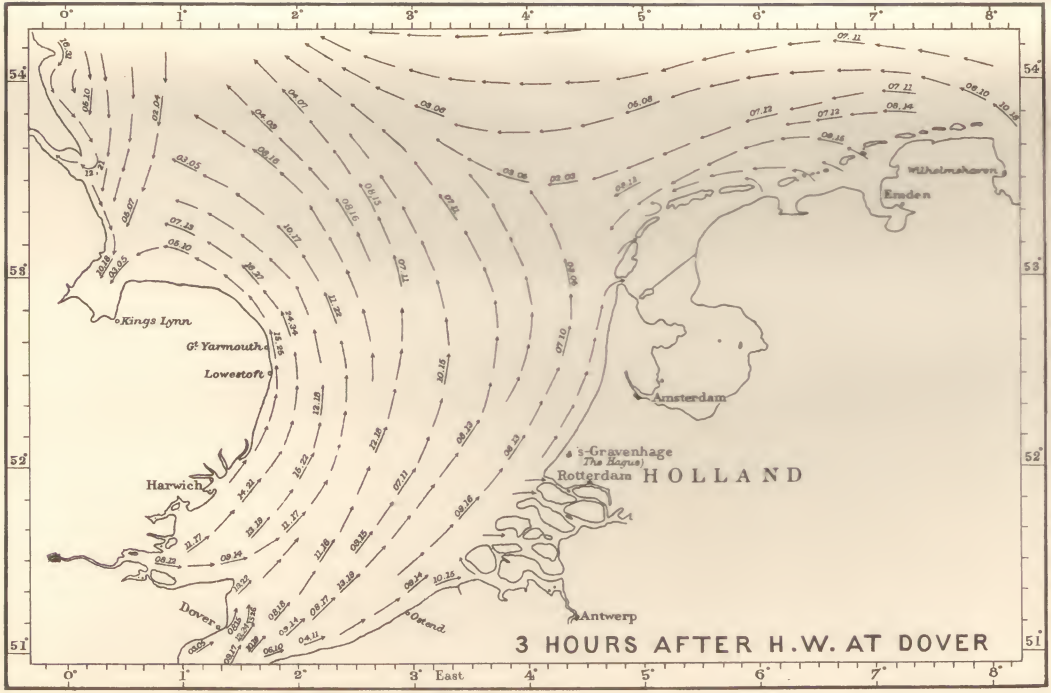


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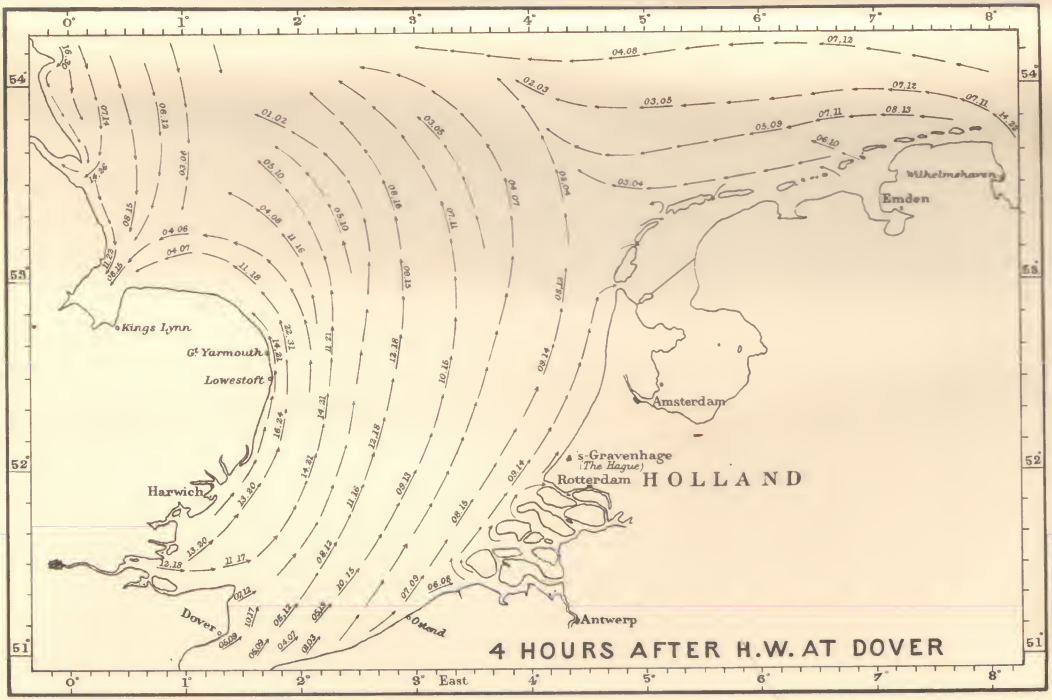


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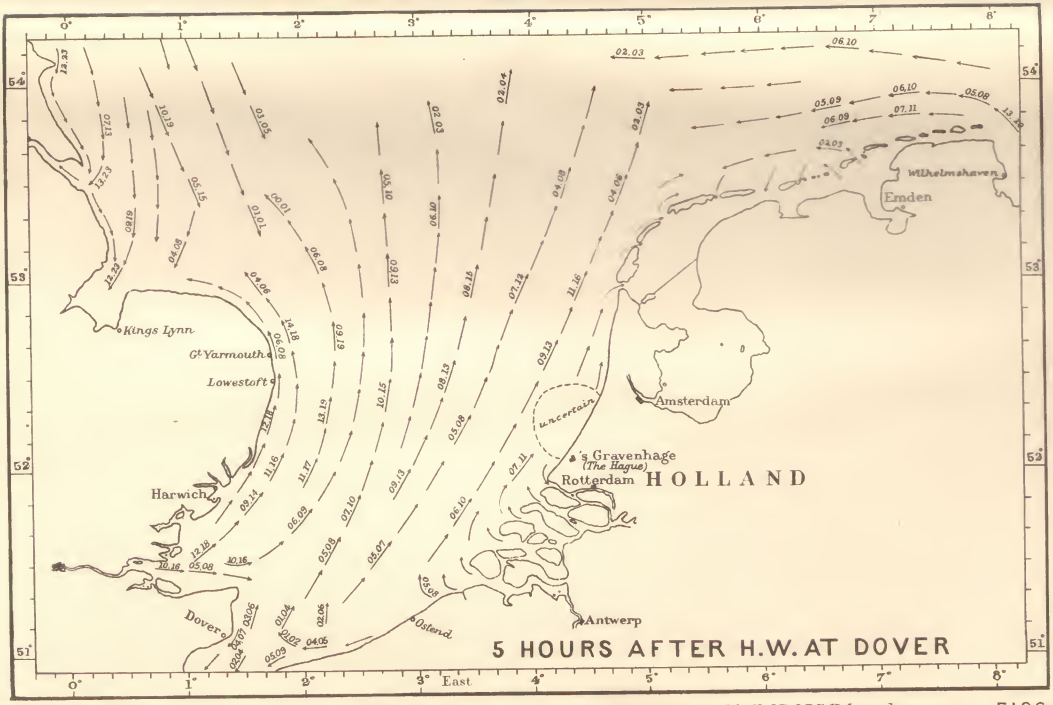


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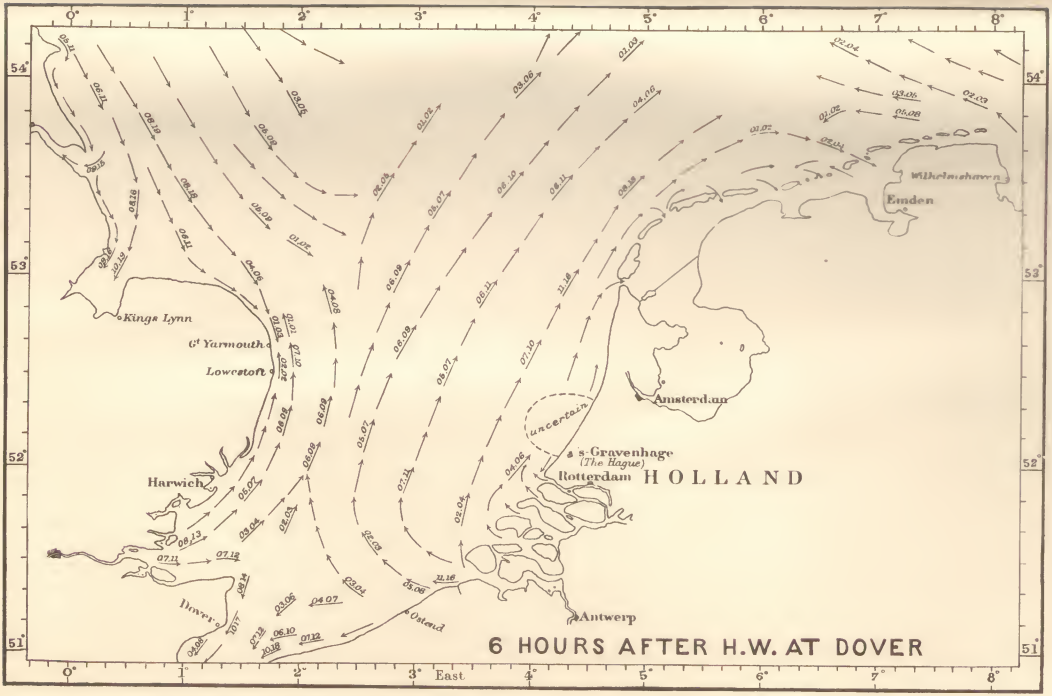


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